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Bird Damage to Apples in the Mid-Hudson Valley of New York

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A study was conducted during 1986 and 1987 to evaluate the nature, extent, and severity of bird depredations on ripening apples (*Malus domestica* Borkh.) in the mid-Hudson Valley of New York. During the first year of the study, information was solicited through cooperative extension fruit agents, in fruit-grower newsletters, and at fruit-grower meetings. In addition, growers were questioned and bird damage was looked for during the course of other projects in orchards. Whenever damage was found, the owner or manager was interviewed, the planting was inspected, and the overall percentage of crop damaged (<1%, 1% to 10%, >10%) was recorded.

During the second year of the study, the percentage of apples pecked by birds was estimated in each of 17 plantings that had a history of bird damage. The plantings were located in 13 orchards and ranged from ≈0.2 to 1.5 ha. During late June or early July, 12 trees evenly scattered throughout each planting were selected for sampling and the number of apples on a branch in the upper portion of each was counted. One to 14 days before harvest, the number of undamaged apples remaining of these same branches was determined. Apples missing during the second count were attributed to birds only if bird-damaged apples were found on the ground directly under the sample branch.

Damage was found on 13 farms in Columbia and Ulster Counties during 1986. Only two growers responded to our inquires through the county cooperative extension offices; the other growers were contacted by us. Most growers apparently did not consider their damage significant enough to respond to our inquiries. Because some farms with damage undoubtably were overlooked, bird depredations in the mid-Hudson Valley probably were more widespread than the 13 farms reported here. However, only two growers considered it serious enough to employ protective measures. Damage in most plantings affected <1% of the apples, and in only four plantings located on three farms did damage exceed 10%.

The comparison of the number of apples on sample branches before and after any damage occurred permitted more precise estimation of bird depredations in selected plantings during 1987. Because the sample was not a random survey of all orchards in the region, the estimates reported here do not reflect the overall impact of birds on all farms or cultivars of apple in the mid-Hudson Valley. Our estimates probably represent the most extreme cases of damage in the region. During 1987, all 17 plantings had bird damage (Table 1). The mean percent of trees with at least some bird damage was 57% (SE = 6), and the mean percent of apples pecked by birds was 5.9% (SE = 1.3).

Timing of fruit maturation seemed to be an important factor influencing bird depredations. Early maturing cultivars Jerseymac, Tydeman, Paulared, and Jonamac were most frequently damaged by birds (Table 1). The fruit of later cultivars that exhibited damage (e.g., 'Cortland', 'Empire', and 'Rome') turned red relatively early in the season. All damaged apples had at least a blush of red. Other investigators (Mitterling, 1965; Brown, 1974; Baker, 1980) also have noted a disproportionate amount of damage to early maturing cultivars.

Many birds were observed in orchards, although few were seen actually eating apples. American crows, the species most often reported by growers as causing problems, were also the species most often encountered during this study. The frequent occurrence of deep triangular peck holes up to 5 cm deep also implicated this species (Mitterling, 1965). Occasionally more than one-half of the apple was consumed. Less common small, irregular nicks presumably resulted from pecking by small songbirds. During 1987, a flock of house finches (*Carpodacus mexicanus* Muller), American goldfinches (*Carduelis tristis* L.), and cedar waxwings (*Bombycilla cedrorum* Vieillot) was encountered feeding on 'Wellingtons', an early cultivar of apple, in an abandoned orchard. Other potential culprits that were observed occasionally in orchards include blue jays (*Cyanocitta cristata* L.), common grackles (*Quiscalus quiscula* L.), and European starlings (*Sturnus vulgaris* L.).

Bird depredations on apples are a widespread but minor problem for most growers in the mid-Hudson Valley. However, bird damage to early maturing apples can be substantial, and depredations may intensify if acreage of such cultivars increases. American crows are the major depredator, although songbirds also cause damage.

Literature Cited

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Table 1. Damage by birds to ripening apples in 17 plantings in 13 orchards in the mid-Hudson Valley of New York, 1987.

Cultivar	Days to harvest	Percent of apples damaged	Percent of trees with damage[z]
Cortland	2	15.9	100
Empire	7	11.4	92
Empire	5	2.6	44
Empire	1	6.9	75
Empire	1	2.4	50
Empire	0	3.6	58
Jerseymac	5	0.3	33
Jerseymac	4	7.0	83
Jonamac	2	2.0	58
Jonamac	14	6.3	67
Paulared	14	18.7	83
Paulared	4	0.8	8
Paulared	1	3.2	58
Paulared	0	6.7	58
Paulared	6	11.9	67
Tydeman	5	0.3	8
Tydeman	3	1.1	25
Mean	4.3	5.9	57

[z]Twelve trees were assessed per cultivar per orchard.

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